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Zoology at Johns Hopkins. — The number of the *Johns Hopkins University Circular* for November, 1897, is devoted to accounts of biological work done. In the introduction Prof. W. K. Brooks gives an outline of the work of the Jamaica expedition of 1897. Dr. H. L. Clarke's paper on the *Viviparous Synoptidæ* of the West Indies is reprinted from the *Zoologischer Anzeiger*. Prof. Maynard M. Metcalf discusses the follicle cells in Salpa, in which he supports the earlier results of Brooks. Dr. George Lefevre has a paper on "Budding in Ecteinascidia." In this form the bud development is strikingly like that in Perophora, as described by Ritter, except for the peculiar rotation of the inner vesicle, which complicates the process in that genus. Dr. F. S. Conant describes one new genus (Tripedalia) and two new species of Cubomedusæ (*T. crystophora* and *Charybdea xaymacana*). The paper is more than systematic, for it contains notes upon the anatomy and development. We understand that Dr. Conant's notes and drawings made during the past summer have been preserved and will be included in the full paper, to be published later. Mr. Gilman A. Drew has some interesting notes on the embryology of the primitive mollusk Yoldia. The most important features in the development are the formation of a larval test, only paralleled by that of Dondersia and the formation of the central ganglia from the walls of invaginations. Dr. E. A. Andrews describes some spinning activities of the polar globules in echinoderms, mollusks, and nemertines, phenomena to which attention has but recently been called.

BOTANY.

Botanical Observations on the Azores,[1] by William Trelease. — During the summers of 1894 and 1896 Professor Trelease, Director of the Missouri Botanical Garden, made two excursions to the Azores. By his friends it was generally supposed that these journeys were rather in the nature of well-earned vacation trips of a man whose productive research work and arduous executive duties must call for occasional relaxation. It is accordingly a matter of some surprise to see as a result of these trips a stout, closely printed, and excellently illustrated report, including not only a careful compilation of the work of others, but hundreds of entries of personal observations. Of this report the introductory pages give a concise statement of the geography, geology, and meteorological conditions of the archipelago, followed by a habital description of the vegetation, including not only the gradually disappearing indigenous element and numerous introduced species, but even the varied plants of cultivation.

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[1] From the *Eighth Annual Report of the Missouri Botanical Garden*, issued Sept. 9, 1897.

The body of the report is occupied by a complete enumeration of the plants, both phænogamic and cryptogamic, known to grow naturally upon the islands. In this list, the following classes of plants are distinguished by different kinds of type: (1) endemic species, (2) Atlantic species of wider distribution, (3) established escapes, (4) doubtful or casual plants. Even the relative abundance of the different species is indicated by signs, so that their respective importance in making up the entire vegetation can be readily inferred. After the names of each species and variety are enumerated the islands on which it occurs, various authenticated *exsiccati*, and several references to the most accessible descriptions and figures. The nomenclature of the Kew Index has been followed "as a matter of convenience." — Would that some other American botanists could be content to follow this example and at the same time consult both their own convenience and that of their colleagues! — Some half-dozen new species and varieties of phænogams are characterized, and these, as well as a number of other rare and hitherto unillustrated endemic species, are admirably figured in fifty-four plates, drawn by Miss Grace E. Johnson.

Professor Trelease has sought in vain for evidence of that racial and varietal divergence in the florulæ of the different islands which is so pronounced in the Galapagos Archipelago. This fact, however, is not very surprising. Such a divergence could scarcely come about unless the florulæ were to a considerable extent isolated; for, if this were not the case, there would be constant crossing and reblending of nearly related forms. In the matter of isolation of the different islands, the Azores and the Galapagos Archipelago are in no sense similar. As Wallace has pointed out, the meteorological conditions for seed distribution are much more favorable in the Atlantic than in the Pacific. But a still more important difference lies in the long habitation of the Azores and constant human intercourse between the different islands of the group. This cannot have failed to bring together plants which have tended toward racial divergence, and these when established upon the same island have most likely crossed freely and again formed a common stock.

The carices of the list, so far as represented by the collections of Professor Trelease, have been identified by Prof. L. H. Bailey, and the cellular cryptogams by a number of specialists. At the close of the paper is a generic index and a bibliography of Azorean botany. The whole report is not only a great credit to its author, but forms the most noteworthy piece of recent American work upon any extra-American flora. B. L. R.

The Flora of British India. — With the publication of the title-page and preface of the seventh volume, and a full index (collated with the *Index Kewensis*) to the entire work, *The Flora of British India*[1] is brought to a close at the end of 1897. In the quarter of a century consumed in its publication the area to which it is devoted has materially increased, and many new collections have been brought to the hands of its indefatigable editor and his collaborators, so that it is but natural that the later volumes should be more thorough than the earlier ones. Valuable it is, throughout; and yet, as Dr. Hooker remarks in the preface to the concluding volume, the treatise is to be regarded as a pioneer work rather than a finished flora. There is no reason to doubt, however, that time will justify his very modestly expressed hope that it may not only enable botanists to name with some accuracy a host of Indian plants, but that it may further facilitate the compilation of local floras and monographs and the discussion of the problems of the distribution of plants from the point of view of what he very well characterizes as perhaps the richest and certainly the most varied botanical area on the surface of the globe, and one which, in a greater degree than any other, contains representatives of the floras of both the Eastern and Western Hemispheres. T.

Miss Eastwood's Studies.[2] — In the second part of the recently inaugurated botanical section of the *Proceedings of the California Academy of Sciences*, Miss Eastwood gives interesting information concerning a number of plants from the White Sands of New Mexico; a comparative study of spurless forms of Aquilegia, in

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[1] *The Flora of British India.* By Sir J. D. Hooker, assisted by various botanists. London. L. Reeve & Co. Pts. xxiii and xxiv. Price 18s. net. — The dates of publication of the volumes, as follows: i, May 1872–Feb. 1875; ii, May 1876–May 1879; iii, May 1880–Dec. 1882; iv, June 1883–Aug. 1885; v, Aug. 1886–Apr. 1890; vi, Dec. 1890–Apr. 1894; vii, 1896–1897.

[2] Alice Eastwood, Studies in the Herbarium and the Field. No. 1. *Proc. Calif. Acad. Sci.* 3 ser. Botany, i, No. 2, 71–86. Pl. VI, VII.